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San Francisco | 14 - 18 December 2015

P53E-2174: Preliminary Geological Map of the Ac-H-7 Kerwan Quadrangle of Ceres: An Integrated Mapping Study Using Dawn Spacecraft Data

ABSTRACT

**Friday, 18 December 2015****13:40 - 18:00***Moscone South - Poster Hall*

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Quadrangle of dwarf planet Ceres. This region, located between 22°S-22°N and 72-144°E, hosts four primary features: 1) the northern part of the 284 km diameter impact basin Kerwan in the center and SE corner of the quadrangle, whose rim is degraded and whose interior has been filled with a 'smooth material' that hosts a significantly lower impact crater density than most of the rest of Ceres' surface; 2) a portion of the 125 km diameter crater Dantu, whose ejecta field covers the NE corner of the quadrangle and where color data show both bright and dark materials, suggesting excavation of terrains of different compositions; 3) an unnamed double crater in the NW corner of the quadrangle surrounded by an ejecta field; and 4) a heavily cratered plains unit in the SW corner of the quadrangle that appears to be part of the dominant unit across Ceres surface. Key goals of the ongoing mapping are to assess the types of processes that might be responsible for resurfacing by the smooth unit, and understanding the nature of the variably-colored Dantu ejecta. The Dantu region is one of two longitudinally distinct regions on Ceres where ESA Hershel space telescope data suggested a release of water vapor (1). At the time of this writing geologic mapping was performed on Framing Camera (FC) mosaics from the Approach (1.3 km/px) and Survey (415 m/px) orbits, including grayscale and color images and digital terrain models derived from stereo images. In Fall 2015 images from the High Altitude Mapping Orbit (140 m/px) will be used to refine the mapping, followed by Low Altitude Mapping Orbit (35 m/px) images in January 2016.

Support of the Dawn Instrument, Operations, and Science Teams is acknowledged. This work is supported by grants from NASA, and from the German and Italian Space Agencies.


Reference: (1) Küppers, M., et al. (2014). Nature, v. 505, 525-527.





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